

Appl. No. 10/672,010
Amdt. sent October 24, 2007
Reply to Office Action of March 6, 2007

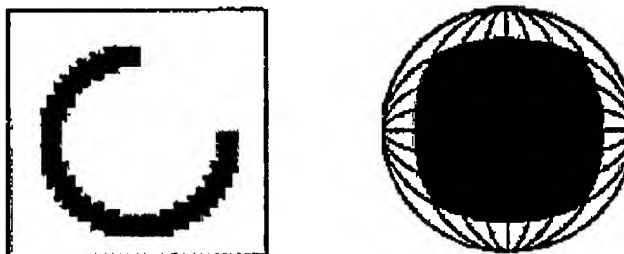
PATENT

REMARKS/ARGUMENTS

Claims 2 and 5 are amended by entry of this response. It is noted with appreciation that claims 10 and 11 are allowed. No claims are canceled or added. Accordingly, claims 1-15 remain pending for examination.

Submitted herewith is a certified copy of the Japanese priority document, Japanese Application No. JP2002-282173.

Embodiments of the present invention relate to a method and apparatus for analyzing defects in a semiconductor wafer manufacturing process. One aspect of the present invention as substantively recited in independent claim 1 is "classifying a defect distribution characteristic into a ring and blob type regional defect." Illustrative examples of a ring type (Figure 15) and blob type (Figure 14D) regional defect are reproduced below. Independent claims 7, 12, and 14 recite similar limitations.



Figures 15 (left) and 14D (right) of the instant application

In the latest Office Action, the Examiner rejected claims 1, 4, 7, 8, and 12-15 as obvious under 35 U.S.C. §103(a) based upon U.S. Patent No. 5,982,920 to Tobin, Jr. et al. ("the Tobin Patent") in view of U.S. Patent No. 7,068,834 to Ikeda et al. ("the Ikeda Patent"). These claim rejections are traversed as follows.

As a threshold matter, the Examiner is respectfully reminded that in order to establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. (MPEP 2143). Here, both the Tobin Patent and Ikeda Patent fail to teach or suggest "classifying defect distribution characteristics into ring and blob type regional defects" as substantially recited in the independent claims.

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The Tobin Patent is directed to a method and apparatus for detecting and classifying patterns formed on semiconductor wafers. However, as specifically acknowledged by the Examiner in the latest Office Action, the Tobin Patent fails to disclose ring/blob type regional defects (See Office Action Mailed March 6, 2007, pg. 6).

In an effort to provide this absent teaching, the Examiner has combined the Tobin Patent with the Ikeda Patent. However, Applicants submit that the Ikeda Patent fails to remedy the deficiencies of the Tobin Patent.

Specifically, the Ikeda Patent is directed to an inspection system and analyzing unit for an image detection device. The Examiner asserts that the Ikeda Patent discloses classifying ring/blob regional defects in element 103 of Figure 1. Applicants respectfully but strenuously disagrees. As shown and described in connection with Figure 1 of the Ikeda Patent (reproduced below), element 103 simply shows a generic, round defect image.

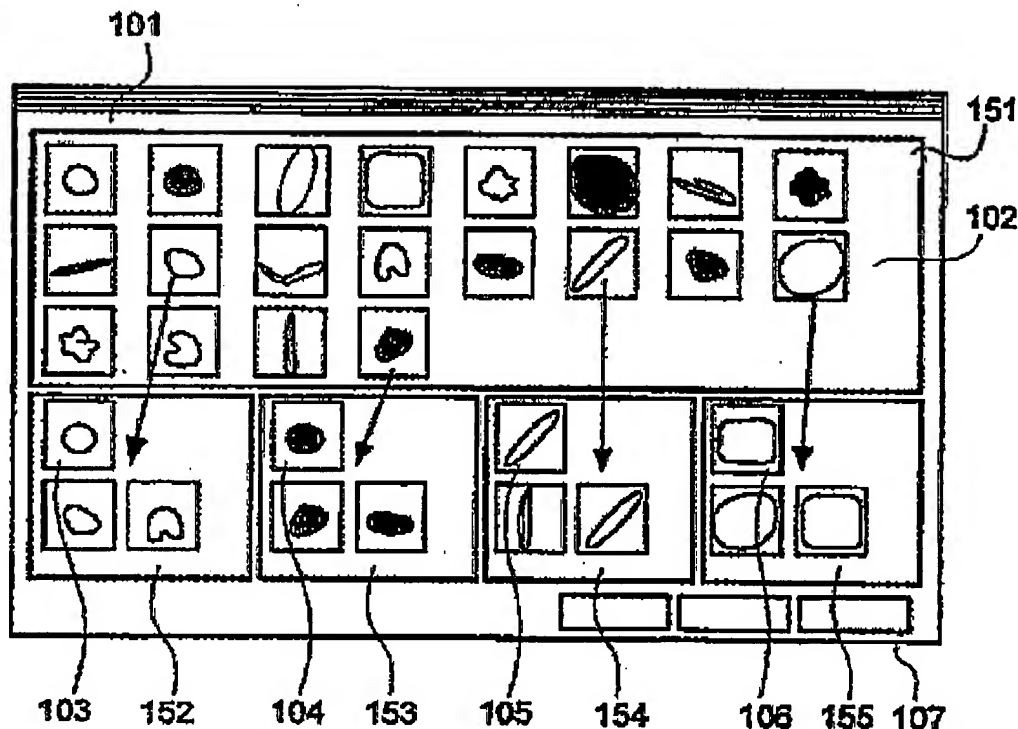


Figure 1 of the Ikeda Patent

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a typical defect image 103 having a white and round defect feature is displayed in area 152, a typical black and round defect image is displayed in area 153, an elongated defect image 105 is displayed in area 154, and a large defect image 106 is displayed in area 155. (Emphasis added; Col. 3, lines 49-53)

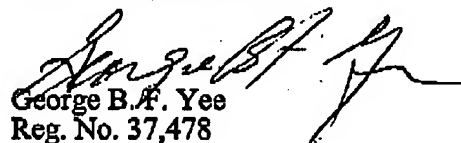
Simply stated, element 103 clearly is described as a round defect, and can not reasonably be understood as disclosing a ring/blob type defect as recited in the pending claims. The round defect in the Ikeda Patent is depicted by a drawing of a circular object. Moreover, the Ikeda Patent fails to even mention a ring or blob type defect. The undersigned respectfully submits the examiner seems to have misinterpreted Ikeda's drawing of a round defect as being a ring or blob type defect. As such, the combination of the Tobin Patent with the Ikeda Patent does not teach or suggest all the elements of the independent claims.

Based upon the failure of the cited art to teach or even suggest every element of the independent claims, it is respectfully asserted that these claims cannot be considered obvious by the art relied upon by the Examiner. Continued maintenance of the obviousness claim rejections is improper, and these claim rejections should be withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,


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